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Serial No. 10/719,525, Filed 11/21/03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants: Raymond A. Milio
Serial No.: 10/719,525
Filed: November 21, 2003
Group Art Unit: 3683
Examiner: Mariano Ong Sy
Title: AXLE HOUSING COVER WITH VARIABLE THICKNESS

APPEAL BRIEF

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

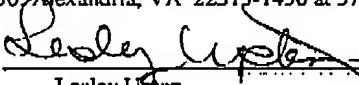
Subsequent to the Notice of Appeal mailed to the Patent and Trademark Office on October 10, 2005 and received on October 12, 2005. Appellant now submits its Brief. Please charge \$500.00 for a Brief filing to Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds, P.C. If any further fees are necessary, you are hereby authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds, PC.

REAL PARTY IN INTEREST

The real party in interest ArvinMeritor Technology, LLC. ArvinMeritor Technology, LLC. is the Assignee of all right and title in this Application from the co-inventors Raymond A. Milio and Dale J. Eschenburg and this assignment was recorded on November 21, 2003 at RccI/Frame 014739/0775.

CERTIFICATE OF FACSIMILE

I hereby certify that this Appeal Brief ad Replacement Sheet Drawings are being facsimile transmitted to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 at 571-273-8300 on December 12, 2005.


Lesley Upton

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RELATED APPEALS AND INTERFERENCES

There are no related applications, patents, appeals or interferences or other prior or pending appeals, interferences or judicial proceedings known to Appellant, the Appellant's legal representative, or assignee which may be related to or directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal. The parent application (USSN 09/814,016) has been abandoned in favor of the present continuation-in-part application.

STATUS OF CLAIMS

Claims 1-9 and 18-20 are presently pending. Claims 1-4, 8-9 and 18-20 are rejected, and claims 5-7 are withdrawn. Claims 1, 18 and 19 are in independent form.

STATUS OF AMENDMENTS

No amendments have been filed subsequent to the final Office Action of May 9, 2005.

The Amendment filed on March 9, 2005 has been entered. It is not clear from the Examiner's May 9, 2005 Office Action whether the Appellant's drawings filed on April 25, 2005 have been entered since 1) PAIR refers to the Appellant's Letter to the Official Draftsman as a "Miscellaneous Incoming Letter," and 2) the Examiner's objection to the drawings refers to the Appellant's earlier submitted drawings on March 9, 2005. Accordingly, Appellant is again submitting the replacement drawings along with this Appeal Brief.

SUMMARY OF CLAIMED SUBJECT MATTER

Referring to the last lines on page 3 of the Specification, an axle housing 8 having the inventive cover 10 secured to the housing 8 is shown in Figure 1A (below). The cover 10 encloses a ring and pinion and possibly a differential gear assembly. The cover 10 has a perimeter 18 having a geometry according to this invention for securing the cover 10 to the

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housing 8 using a weld bead 24. The geometry of the perimeter 18 enables the weight of the cover 10 to be reduced by ensuring sufficient material for the weld bead 24.

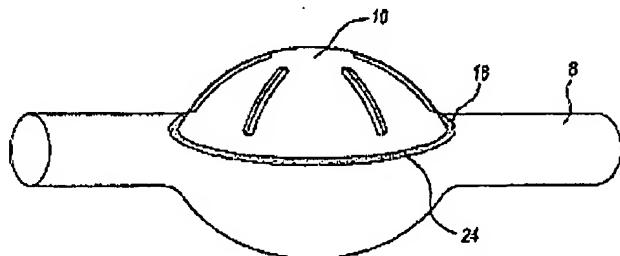
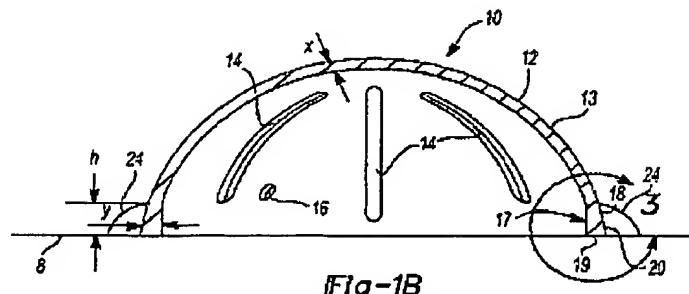


Fig-1A

Referring to paragraph 18 on page 4 of the Specification, the axle housing cover 10 is shown in more detail in Figures 1B (below). The cover 10 includes a dome- or concave-shaped portion 12 having a concave exterior surface 13. The dome-shaped portion 12 has a first thickness X. The dome-shaped portion 12 commonly includes an oil drain/fill hole 16. The cover 10 includes a terminal portion 17 having a circular terminal end 19 that engages the axle housing. The terminal portion 17 has a perimeter edge 18 with a second thickness Y. Claim 18 recites that the outer perimeter edge 18 lies within a boundary tangential to the dome-shaped portion 12 immediately adjacent to the outer perimeter edge 18. Claim 19 recites that the outer perimeter edge 18 is adjacent to the terminal end 19 without extending radially outwardly from the dome-shaped portion 12.

Preferably, the second thickness Y is greater than that of the first thickness X and in one example, is approximately twice the thickness of the first thickness X. Claim 2 recites that the second thickness Y is up to approximately twice the first thickness X. For example, the first thickness may be in a range of 4.0 to 6 millimeters and the second thickness may be in a range of approximately 8 to 16 millimeters. The perimeter edge 18 provides a weld surface 20 to which a weld bead 24 is applied to secure the cover 10 to the axle housing 8 about the opening in the housing 8.



Referring to paragraph 19 on page 4 of the Specification, the second thickness Y provides a weld height H that is greater than the first thickness X. Claim 1 recites that the height H is greater than the first thickness X, and that the height is defined as extending away from the axle housing surface. The height H enables a large weld bead to be applied about the perimeter of the cover 10. Because the thickness of the dome-shaped portion 12 is reduced when compared to prior art covers, it may be desirable to form reinforcing ribs 14 into the dome-shaped portion 12 to provide increased structural integrity. Claims 3 and 4 recite that the dome-shaped portion includes multiple reinforcing ribs. By providing a cover 10 with a variable thickness, structural integrity in the area of the perimeter edge 18 may be provided while reducing the thickness in the rest of the cover 10 to reduce the weight and cost of the cover.

Maintaining a suitably large thickness in the area of the perimeter edge 18 ensures that an adequate weld bead may be used between the cover 10 and the axle housing and that the weld does not burn through the cover during the welding process. The second thickness Y prevents burn-through of the large weld in the area of the perimeter. The weld would burn-through the cover material in the area of the perimeter if it was only the thickness of first thickness X. However, that is not to say that the weld 24 cannot extend slightly beyond the height H, but rather, a substantial portion of the weld 24 is arranged between the height H and the axle housing 8. Furthermore, the second thickness Y may vary along its length, as shown in Figure 3 (below).

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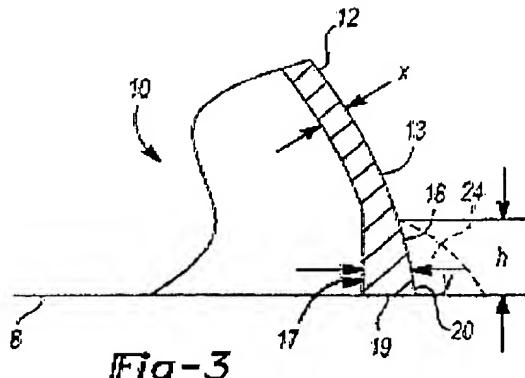


Fig-3

Referring to paragraph 20 on page 5 of the Specification, one embodiment of the perimeter edge 18 is shown in Figure 3. In the embodiment shown, the perimeter edge 18 does not extend beyond the concave exterior surface 13. That is, the perimeter edge is not defined by a flange in Figure 3. Embodiments with flanges are claimed in withdrawn claims 5-7.

As described in the last paragraph on page 5 of the Specification, the cover 10 may include a recessed boss 26 having an opening 28, as shown in Figure 6 (below), formed into the cover 10 by stamping. A carrier assembly 27, shown in phantom, may be installed onto the boss 26 so that the carrier may be connected to the differential assembly within the axle housing, which is a known arrangement in the art. Claim 8 recites that the "dome-shaped portion includes a recessed boss with an opening receiving a carrier."

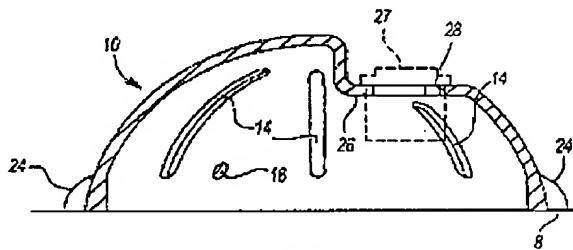


Fig-6

GROUNDS FOR REJECTION TO BE REVIEWED ON APPEAL

- I) The final rejection of claim 1 under 35 U.S.C. §102(b), as being anticipated by Ishibashi et al. is improper.
- II) The final rejection of claim 2 under 35 U.S.C. §102(b), as being anticipated by Ishibashi et al. is improper.
- III) The final rejection of claims 3 and 4 under 35 U.S.C. §103(a), as being unpatentable over Ishibashi et al. in view of Pringle is improper.
- IV) The final rejection of claim 8 under 35 U.S.C. §103(a), as being unpatentable over Ishibashi et al. in view of Jones is improper.
- V) The final rejection of claims 9 and 18-20 under 35 U.S.C. §103(a), as being unpatentable over Ishibashi et al. in view of Metals Handbook, 8th Edition, Welding and Brazing, page 270, fig. 27 is improper.

ARGUMENTS**§102 rejection:**

Claims 1 and 2 were rejected under §102(b) over Ishibashi.

A. Claim 1:

Claim 1 defines the perimeter edge and its height. The perimeter edge is secured to a surface of the axle housing by a weld bead. Ishibashi discloses a dome having a first thickness that is equal to the height. Claim 1 specifies that the height extends from the surface of the axle housing and in a direction away from the surface. Claim 1 further specifies that the height is greater than the first thickness, which is provided by the dome-shaped portion.

These limitations are not met by Ishibashi, but the Examiner argues they are shown in Figures 3 and 5. Figure 3 shows nothing conclusive since it is a top view of the cover, and it

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cannot support the Examiner's position. The height is defined in claim 1 as extending away from the surface of the axle housing to which the cover is welded. According to this definition of height, the height in Ishibashi is equal to the thickness of the cover.

B. Claim 2:

It is clear that the Examiner is attempting to read the width of the perimeter edge as a height. Such a reading cannot meet the limitations of claim 1 for the reasons explained above. Nonetheless, claim 2 is additionally allowable because apparently what the Examiner considers to be the second thickness—the width of the perimeter edge in Ishibashi—is actually greater than twice the first thickness in Ishibashi. Claim 2 specifies the second thickness is up to approximately twice the first thickness. The Examiner's reference to the Appellant's Specification on page 7 of the May 9, 2005 Office Action does not make sense, and the comments are irrelevant since it is the teachings of the references and the claim limitations that are pertinent.

§103 rejections:

A. Claims 3 and 4

Claims 3 and 4 were rejected under §103 over Ishibashi in view of Pringle.

The Examiner acknowledges that Ishibashi does not disclose the reinforcing ribs. The Examiner argues that one or ordinary skill would provide the reinforcing ribs of Pringle to the cover of Ishibashi "in order to add strength and support to the cover." This motivation is not supported by the references. In fact, as stated by the Examiner in paragraph four of the specification, industry practice is to provide a cover that is too thick. Thus, reinforcing ribs would be unnecessary to the already unnecessarily thick dome. The Examiner has not provided any teachings in the references to support a *prima facie* case of obviousness in view of this. The Examiner has put forth no contrary evidence.

B. Claim 8:

Claim 8 was rejected under §103 over Ishibashi in view of Jones

The carrier is shown in phantom in Figure 6. Ishibashi does not disclose a carrier or a recessed boss. The Examiner relies upon Jones to provide this feature. The Examiner argues that it would be obvious to provide such a recess boss “to provide an access port to the axle assembly for service and maintenance.” First, the element in Jones is not a carrier as understood by one of ordinary skill or by the plain dictionary definition, but is a plug. For this reason alone the rejection should not stand. Second, Ishibashi does not need an access port as the element 17 and its associated carrier may be removed to provide access. Accordingly, the “access port” of Jones provides no benefit.

The Examiner on page 4 of the May 9, 2005 Office Action argues that since carriers are well known, that the claim is obvious. Something being well known is irrelevant. The Examiner must establish a motivation to modify the base reference, Ishibashi, with the secondary reference, Jones. Simply stating something is known does not provide the requisite motivation. The Examiner’s general statements regarding “design choice” and “well known alternative” are also addressed below under headings C.1. and C.2.

C. Claims 9 and 18-20

Claims 9 and 18-20 were rejected under §103 over Ishibashi in view of the Metals Handbook.

To summarize the Appellant’s prior Responses, there is no motivation or suggestion to one of ordinary skill in the art to modify Ishibashi with the teachings of the Metals Handbook and, therefore, the combination is improper. The Examiner has previously argued that the motivation to modify Ishibashi with the Metals Handbook is “in order to have a stronger weld joint between the domed shape cover and the housing.”

The argued motivation was insufficient for at least two reasons. First, there is no

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teaching in either of the references indicating that the weld in Ishibashi is not strong enough or that it would benefit from a different weld configuration, let alone the specific weld configuration disclosed in the Metals Handbook. Second, Ishibashi requires that the two mating weld surfaces be tapered at the edges to receive the weld bead. Ishibashi does not have these tapered surfaces nor could these tapered surfaces be incorporated in the configuration of Ishibashi.

In response to the Appellant's argument summarized above, the Examiner continues to argue that one of ordinary skill in the art would have made the combination because the Appellant's claimed features are merely a matter of "design choice" and an "alternative equivalent" of a known terminal end of a domed-shaped cover. This statement is not sufficient to support an obviousness rejection using the combination and will be reversed on appeal. The Examiner argues with respect to claim 19, that Appellants claim a "mere reversal of parts" and, thus, claim 19 is obvious. This rejection is also improper.

1. design choice

The Examiner appears to be referencing MPEP 2144.04 XI C in attempting to rely upon "design choice." However, the MPEP clearly sets forth that when making a rejection based upon design choice, the prior art must still provide a motivation or reason for one of ordinary skill in the art to make the necessary changes to the reference. That is, simply stating it would be "design choice" is not enough. The Examiner has not rebutted the Appellant's two arguments set forth above, and therefore, the rejection cannot stand.

2. alternate equivalent

With regard to the Examiner's statement that the claimed features are an "alternate equivalent" of a known terminal end, the Examiner appears to be attempting to take official notice. The Appellant challenges this statement, in which case the Examiner must provide a

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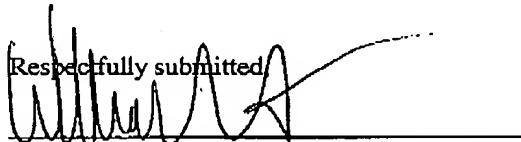
reference supporting that statement, as required by the MPEP. The Examiner is not permitted to merely conclude that something is an "alternate equivalent." The Examiner must, at the very least, establish with a reference that the prior art weld configuration is an equivalent. The Examiner's own judgment is not a substitute.

3. reversal of parts

The Examiner acknowledges that Ishibashi and the Metals Handbook do not disclose an outer perimeter edge adjacent to the terminal end that does not extend radially outward from the dome-shaped portion. The Examiner argues that it would be obvious because it would be a mere reversal of parts to provide the claimed limitation. The Examiner sites *In re Einstein*, which is not dispositive of the issue. Appellant directs the Examiner's attention to §2144.04 of the MPEP regarding the "rearrangement of parts." The MPEP clearly establishes that the Examiner cannot simply sidestep his obligation to establish a *prima facie* case of obviousness by simply alleging it would be a mere reversal or rearrangement of parts. The Examiner is still required to provide a motivation to one of ordinary skill to modify the base reference, here Ishibashi, to include the missing limitation. The Examiner has not done so. Accordingly, the rejection cannot stand.

CLOSING

For the reasons set forth above, the final rejection of all claims is improper and must be reversed. An early indication of such is earnestly solicited.

Respectfully submitted,

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Date: 12-12-05

CLAIMS APPENDIX

1. An axle comprising:

an axle housing including a surface;

a cover having a generally dome-shaped portion having a first thickness, said dome-shaped portion terminating in a perimeter edge having a second thickness greater than said first thickness, said perimeter edge including a height extending from said surface and in a direction away from said surface, said height greater than said first thickness, wherein said perimeter edge provides a weld surface; and

a weld bead securing said perimeter edge to said surface of said axle housing.

2. The axle according to claim 1, wherein said second thickness is up to approximately twice said first thickness.

3. The axle according to claim 1, wherein said dome-shaped portion includes a plurality of reinforcing ribs protruding therefrom.

4. The axle according to claim 3, wherein said plurality of reinforcing ribs are arranged radially about said dome-shaped portion.

5. The axle according to claim 1, wherein said dome-shaped portion includes a concave exterior surface, and said perimeter edge is a flange extending radially outwardly from said concave exterior surface.

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6. The axle according to claim 5, wherein said flange is defined by a portion of said dome-shaped portion folded back onto itself.

7. The axle according to claim 6, wherein said weld surface is a machined circumference of said flange.

8. The axle according to claim 1, wherein said dome-shaped portion includes a recessed boss with an opening receiving a carrier.

9. The axle according to claim 1, wherein dome-shaped portion includes a concave exterior surface with said perimeter edge defined by a terminal portion of said concave exterior surface.

18. An axle housing cover for securing to an axle housing comprising:
a generally dome-shaped portion having a first thickness, said dome-shaped portion terminating in a terminal end for engaging the axle housing, said dome-shaped portion including an outer perimeter edge adjacent to said terminal end and having a second thickness different than said first thickness, said outer perimeter edge lying within a boundary tangential to said dome-shaped portion immediately adjacent to said outer perimeter edge providing a weld surface for receiving a weld bead for securing the cover to the axle housing.

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19. An axle housing cover for securing to an axle housing comprising:

a generally dome-shaped portion having a first thickness, said dome-shaped portion terminating in a terminal end for engaging the axle housing, said dome-shaped portion including an outer perimeter edge adjacent to said terminal end without extending radially outwardly from said dome-shaped portion and having a second thickness different than said first thickness, said perimeter edge providing a weld surface for receiving a weld bead for securing the cover to the axle housing.

20. The axle housing cover according to claim 18, wherein the second thickness is greater than said first thickness, said outer perimeter edge having a height greater than said first thickness.

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EVIDENCE APPENDIX

None.

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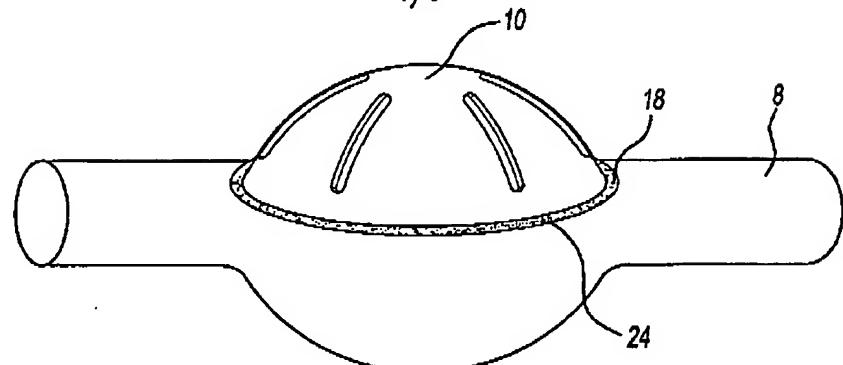
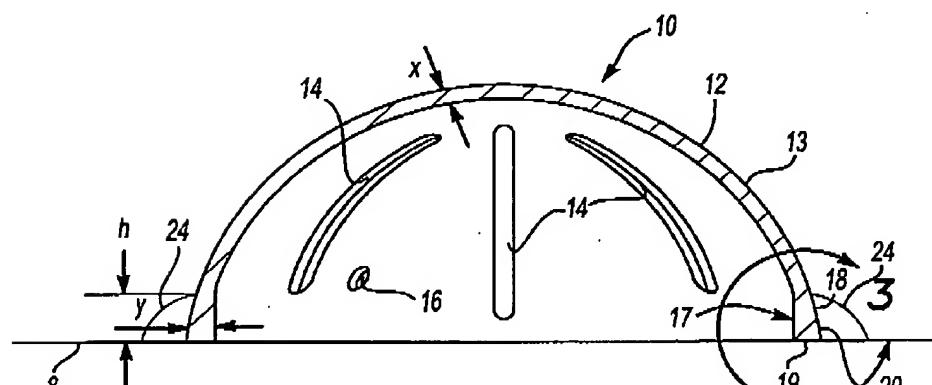
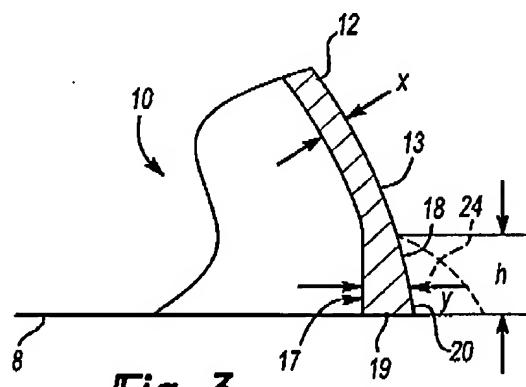
RELATED PROCEEDINGS APPENDIX

None.

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REPLACEMENT SHEET
 Title: AXLE HOUSING COVER WITH VARIABLE THICKNESS
 First Inventor Name: Raymond A. Milo
 Application Serial No. 10/719,525, filed: November 21, 2003

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Fig-1AFig-1BFig-3

REPLACEMENT SHEET
Title: AXLE HOUSING COVER WITH VARIABLE THICKNESS
First Inventor Name: Raymond A. Milio
Application Serial No. 10/719,525, filed: November 21, 2003

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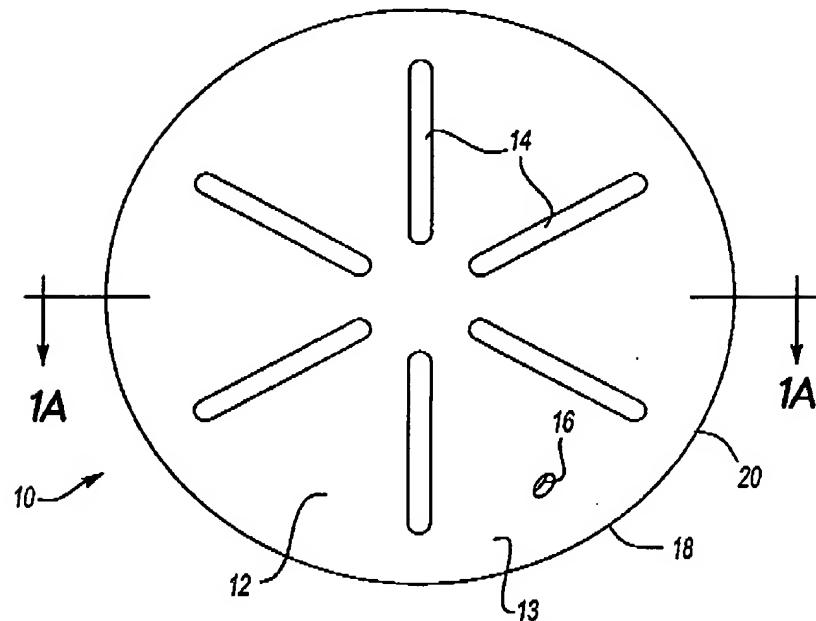


Fig-2

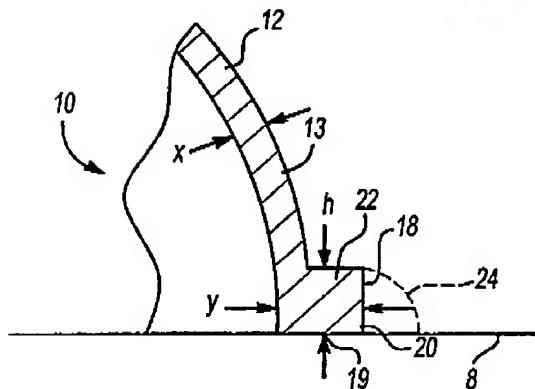


Fig-4

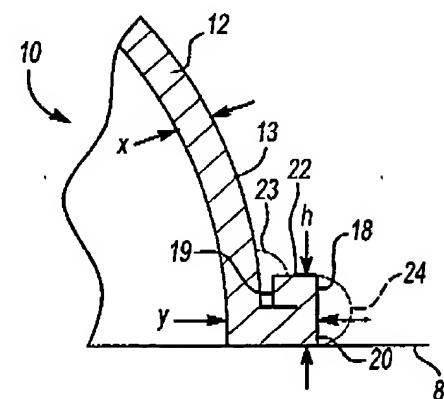


Fig-5A

REPLACEMENT SHEET

Title: AXLE HOUSING COVER WITH VARIABLE THICKNESS
First Inventor Name: Raymond A. Millo
Application Serial No. 10/719,525, filed: November 21, 2003

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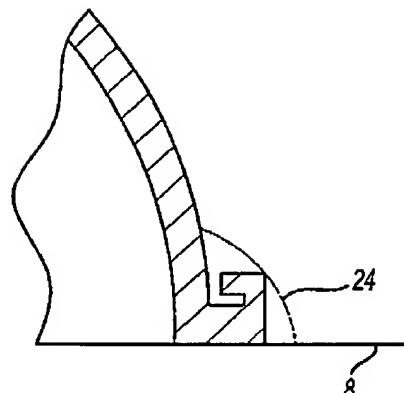


Fig-5B

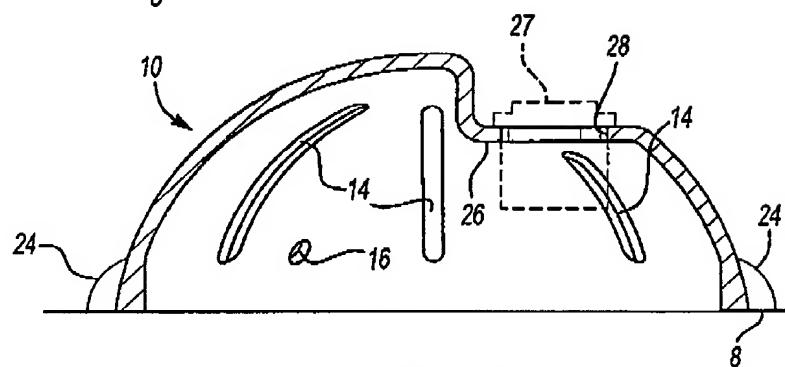


Fig-6

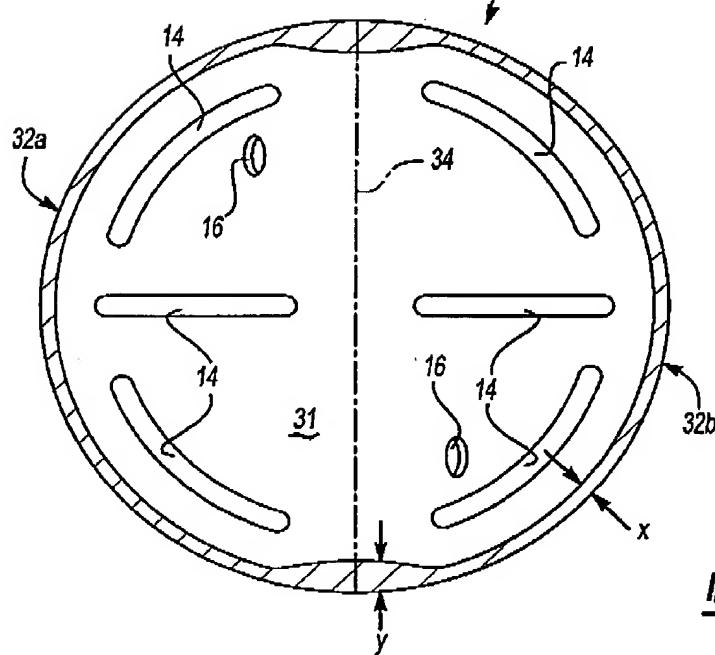


Fig-7